WHAT IS CLAIMED IS:

1. Ophthalmic Lens extraction apparatus comprising:

a phacoemulsification handpiece having a needle and electrical means for ultrasonically vibrating said needle;

power source means for providing pulsed electrical power to the handpiece electrical means;

input means for enabling a surgeon to select an amplitude of the electrical pulses;

means for providing irrigation fluid to the eye and aspirating fluid from the handpiece needle; and

a control means, further comprising at least a switch for controlling a pulse duty cycle of power supplied to the handpiece, an off duty cycle being controlled to ensure heat dissipation before a subsequent pulse is activated.

2. The lens extraction apparatus according to claim 1, wherein said switch comprises a footswitch.

3. The lens extraction apparatus according to claim 1, wherein said control means provides a pulse repetition rate of between about 25 and about 2000 pulses per second.

4. The lens extraction apparatus according to claim 1, wherein said input means enables a linear selection of pulse amplitude.

5. The lens extraction apparatus of claim 3, wherein continued linear footswitch displacement enables activation of a series of pulse duty cycles of power supplied to the handpiece.

5. Phacoemulsification apparatus comprising:

a phacoemulsification handpiece having a needle and electrical means for ultrasonically vibrating said needle;

power source means for providing pulsed electrical power to the handpiece electrical means;

input means for enabling a surgeon to select an amplitude of the electrical pulses, and a pulse duty cycle supplied to the handpiece;

means for providing irrigation fluid to the eye and aspirating fluid from the handpiece needle; and

control means, responsive to the selected pulse amplitude and the pulse duty cycle for controlling an off duty cycle to ensure heat dissipation before a subsequent pulse is activated.

6. The phacoemulsification apparatus according to claim 5, wherein said switch comprises a footswitch.

7. The phacoemulsification apparatus according to claim 5, wherein said control means provides a pulse repetition rate of between about 25 and about 2000 pulses per second.

8. The phacoemulsification apparatus according to claim 5, wherein said input means enables a linear selection of pulse amplitude.

9. Phacoemulsification apparatus comprising:

a phacoemulsification handpiece having a needle and electrical means for ultrasonically vibrating said needle;

power source means for providing pulsed electrical power to the handpiece electrical means;

input means for enabling a surgeon to select an amplitude of the electrical pulses;

means for providing irrigation fluid to the eye and aspirating fluid from the handpiece needle; and

control means, further comprising at least a switch for controlling a pulse duty cycle of power supplied to the handpiece, an off duty cycle being controlled to ensure heat dissipation before a subsequent pulse is activated.

10. The phacoemulsification apparatus according to claim 9, wherein said switch comprises a footswitch.

11. The phacoemulsification apparatus according to claim 9, wherein said control means provides a pulse repetition rate of between about 25 and about 2000 pulses per second.

12. The phacoemulsification apparatus according to claim 9, wherein said input means enables a linear selection of pulse amplitude.

13. A method for operating a phacoemulsification system, the system including a phacoemulsification handpiece, an ultrasonic power source, a vacuum source, a source of irrigating fluid, and a control unit for providing pulsed

ultrasonic power to the handpiece, said operating method comprising the steps of:

(a) placing the handpiece in an operative relationship with an eye for a phacoemulsification procedure;

(b) supplying irrigation fluid from the irrigation fluid source into said eye;

(c) providing ultrasonic power from the ultrasonic power source to the handpiece of performing the phacoemulsification procedure;

(d) controlling a pulse duty cycle of power supplied to the handpiece;

(e) applying vacuum from the vacuum source to the handpiece and thereby aspirating the irrigation fluid from the eye through the handpiece at a selected rate;

(f) variably controlling, a pulse duty cycle of power supplied to the handpiece, an off duty cycle being controlled to ensure heat dissipation before a subsequent pulse is actuated.

14. The method according to claim 13, wherein the step of controlling the pulse duty cycle includes providing a pulse repetition rate of between about 25 and about 2000 pulses per second.

15. The method according to claim 13, wherein the step of controlling the duty cycle of power pulses includes controlling the duty cycle in a linear manner.

16. The method according to claim 13, wherein controlling a pulse duty cycle includes the use of a footswitch which angles in at least one ordinal plane.

17. The method according to claim 13, wherein controlling an amplitude of power pulses including the use of a footswitch.

18. The method of claim 13, wherein the mode of tissue attack further comprises use of at least transient cavitational energy.

19. The method of claim 18, further comprising provision of a second instrument, or a bimanual phacoemuslification probe.

20. The method of claim 13, whereby the heat resulting in tissue insult is mitigated providing a clear cornea within the first post-operative day.